



FarmFacts

Produced by Saskatchewan Agriculture and Food and Saskatchewan Rural Development

Caraway (*Carum carvi*) is an erect biennial or triennial herb similar in appearance to a carrot — both are members of the parsley plant family. Caraway is cultivated from temperate to tropical climates, including Northern Europe, Russia, Jamaica, India and the United States. Caraway oil is primarily produced in the Netherlands.

Caraway, like all biennials, requires a second or third growing season to mature. Seed planted in May germinates in about two to three weeks. Bushy green foliage about eight inches (20 cm) high is produced during the summer. The second summer, the plant sets seed, ripens and dies. Caraway is best adapted to sheltered areas that tend to accumulate winter snowcover.

Caraway seeds are a favorite flavoring for bread, cakes, biscuits, cheese, cookies and sauerkraut. Caraway seeds contain an average of 3 to 5% oil. Caraway seed oil is used to flavor sausages, meats, perfumes, mouthwash and liqueurs. Because carvone, the principle constituent of caraway oil, can be produced synthetically, the demand for oil of caraway has been decreasing in recent years.

Caraway is a high risk crop. Cost of production is high and risk of losses from poor emergence, weed competition or shattering are high. It is therefore recommended to begin production with just a few acres and to obtain a contract or market.

Caraway seed has been produced in Canada on a very limited scale. Production information is therefore quite sketchy. The following production suggestions are made on the basis of grower experience.

Adaptation

Caraway can be grown successfully on a wide range of soil types. Shallow sandy soil should be avoided. Since caraway can tolerate some light spring flooding, it should do well in peat soils. Caraway responds well to irrigation. However, if droughted, the caraway plant will not die. It remains near-dormant and will regrow with rainfall. Seed yield will be minimal under drought conditions, but the plant will likely set normal amounts of seed in the year following drought if adequate precipitation has been received.

Winterkill can be a problem. Select sheltered fields that have a tendency to accumulate snow cover. In Saskatchewan, caraway has not been successful in the Southwest.

Seeding

In Europe caraway is seeded with an annual cover crop. In Canada, field pea, flax, mustard, canola and lentil have been used successfully. In order to reduce competition to the caraway, the seeding rate of the nurse crop should be reduced by about $\frac{1}{2}$ to $\frac{2}{3}$ the normal rate. Otherwise the caraway crop may not obtain enough growth for flowering the second year and most plants will overwinter the second winter and flower the third year. Crops which produce heavy vegetative growth should not be used as a nurse crop.

Seeding rate for caraway is 10 pounds per acre. It is important to seed caraway no deeper than $\frac{1}{2}$ inch. Caraway can be broadcast and then harrowed in or a grain drill may be used with a grass seeder attachment. Germination can take two to three weeks. Therefore a weedfree field is very important. In the year of establishment, tall annual weeds

can be mowed.

Pests

There are no known insect problems in caraway other than storage insects. In general caraway response to herbicide is similar to that of carrots. Ethalfuralin (Edge DF) is the only registered herbicide for caraway. Ethalfuralin can be both fall or spring applied. Ethalfuralin provides control of annual grasses (green and yellow foxtail, barnyard grass), volunteer wheat and annual broadleaves (kochia, wild buckwheat, redroot pigweed, lamb's-quarter, cow cockle, purslane, chickweed, corn spurry, prostrate pigweed). Consult the label to determine the rate of application.

Fertilizers

Standard rates of fertilizers can be used with the nurse crop. An application of nitrogen (40-60 lb/ac of N), after the nurse crop has been harvested or early in the spring of the following year, is essential for continued good yields of caraway seed.

Harvesting

Caraway shatters very easily when fully ripe. It is therefore necessary to swath caraway when about 25% of the seeds are turning brown.

Swathing is often done early in the morning when dew is still on the plants, because the seeds shatter less readily than in the heat of the day. After being swathed, the caraway is allowed to cure. The "seeds" (each is a split half of a fruit) are about 2 mm long, curved, and tapered at each end and have five pale ridges. The color of the "valley" between each ridge should be dark brown in order to satisfy buyers.

The stubble should be left as high as possible, so as to provide an anchor for the caraway swath. It may help to use a swath roller.

Caraway seed must be threshed dry, at a moisture content of 10% or less. If weather conditions are hot and dry at threshing time, it may be necessary to thresh caraway at night when it is cooler and there is less danger of shattering loss.

Caraway threshes very easily. Care should be taken to adjusting the combine to keep seed loss to a minimum and prevent damage to the seed. Cylinder speed and concave clearance should be similar to settings used for rapeseed and mustard.

Supply and Demand

Industry, Science and Technology Canada reports a total of 56,000 kg whole seed and 4,300 kg of crushed or ground caraway seed was imported into Canada in 1988.

Prices

The *Chemical Marketing Reporter* is one of the most thorough sources of spice price data. It reports weekly New York spot prices. Spot prices tend to be higher than those obtained from direct overseas suppliers because spot markets are only used when immediate supplies are required.

As well, the U.S.D.A. Foreign Agricultural Service publication, *Teas, Spices and Essential Oils* reports annual price summaries.

Prices of Dutch caraway average about 65 cents per pound (U.S.).

Markets

Canadian grown caraway seed has had difficulty penetrating North American markets because of strong competition from Dutch caraway. Nevertheless, Canadian brokers and millers are expressing interest in steady domestic supplies of clean, good quality spices.

Because the market for caraway seed is limited, a grower should obtain a contract with a broker or marketing company. However, some local end user markets exist and should not be ignored.

Sources of Information

A listing of current spice brokers and millers is available from:

American Spice Association, Inc.
580 Sylvan Avenue
P.O. Box 1267
Englewood Cliffs, New Jersey
07632 USA
(201) 568-2163

and

Canadian Spice Association
P.O. Box 189
Don Mills, Ontario
M3C 2S2

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